

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (currently amended) A method for remodeling luminal tissue, said method comprising:
positioning a cylindrical vibrational transducer within a balloon at a target site in a body lumen of a patient;
inflating the [[a]] balloon with an acoustically transmissive medium to position the cylindrical vibrational transducer in the body lumen, wherein the balloon is engaged against a luminal wall; and
energizing selected longitudinal divisions of the vibrational transducer to produce acoustic energy transmitted through the acoustically transmissive fluid to luminal tissue under conditions selected to induce tissue remodeling in at least a portion of the tissue circumferentially surrounding the body lumen.
2. (original) A method as in claim 1, wherein the acoustic energy is produced under conditions which at least shrink the tissue.
3. (original) A method as in claim 1, wherein the acoustic energy is produced under conditions which reduces the compliance of the tissue in either or both the radial and longitudinal directions.
4. (original) A method as in claim 1, wherein the acoustic energy is produced under conditions which at least induce collagen formation in the tissue.
5. (original) A method as in claim 1, wherein the acoustic energy is produced under conditions which at least cause cavitation in the tissue.

6. (original) A method as in claim 1, wherein the acoustic energy is produced under conditions which at least interrupt nerve pathways in the tissue.

7. (original) A method as in claim 1, wherein the acoustic energy is produced under conditions which at least interrupt the reception and/or production of biochemicals in the tissue.

8. (original) A method as in claim 1, wherein the acoustic energy is produced under conditions which at least interrupt the ability of the tissue to absorb food.

9. (original) A method as in claim 1, wherein the acoustic energy is produced under conditions which at least selectively destroy intestinal metaplasia in the esophagus.

10. (original) A method as in claim 1, wherein the transducer is energized to produce acoustic energy in the range from 10 W/cm² to 100 W/cm².

11. (original) A method as in claim 1, wherein the transducer is energized at a duty cycle from 10 % to 100 %.

12. (original) A method as in claim 1, wherein the transducer is energized under conditions which heat the tissue to a temperature in the range from 55°C to 95°C.

13. (original) A method as in claim 1, further comprising cooling the luminal surface tissue while tissue beneath the surface is heated.

14. (original) A method as in claim 1, wherein positioning the vibrational transducer comprises introducing a catheter which carries the transducer into the body lumen.

15. – 17. (canceled).

18. (currently amended) A method as in claim 1 ~~[[15]]~~, further comprising moving the transducer relative to the balloon(s) in order to focus or scan the acoustic energy axially on the luminal tissue surface.

19. (original) A method as in claim 1 ~~[[16]]~~, wherein the acoustically transmissive medium is cooled to cool the luminal tissue surface.

20. (original) A method as in claim 1, further comprising monitoring temperature at the luminal tissue surface.

21. (original) A method as in claim 1, further comprising monitoring temperature below the luminal tissue surface.

22. (original) A method as in claim 1, wherein energizing comprises focusing the acoustic energy beneath the luminal tissue surface.

23. (original) A method as in claim 1, wherein energizing comprises focusing the acoustic energy at or just before the luminal tissue surface.

24. (currently amended) A method as in claim 1 ~~[[27]]~~, wherein the vibrational transducer comprised a phased array.

25. (original) A method as in claim 24, wherein the phased array is selectively energized to focus the acoustic energy at one or more desired locations in the tissue surrounding the body lumen.

26. (currently amended) A method as in claim 1, wherein positioning the vibrational transducer comprises:

introducing a cannula to the target site;

~~expanding a balloon on the cannula at the target site with an acoustically transmissive medium; and~~

~~selectively directing the vibrational transducer within the balloon to remodel targeted tissue.~~

27. (original) A method as in claim 26, further comprising viewing the target tissue through a scope in or on the cannula while directing the vibrational transducer.

28. (currently amended) A method as in claim 26, wherein the transducer is a beam transducer, further comprising selectively directing ~~comprises~~ deflecting and/or rotating the [[a]] beam transducer.

29. (currently amended) A method as in claim 26, wherein the transducer is a circumferential array transducer, further comprising selectively directing ~~comprises~~ axially translating the [[a]] circumferential array transducer.

30. (currently amended) A method as in claim 26, wherein further comprising selectively directing ~~comprises~~ everting the transducer to direct energy against tissue surrounding an opening to the body lumen.

31. (original) A method as in claim 30, wherein the balloon is expanded over the entire opening.

32. (original) A method as in claim 31, wherein the balloon is expanded over a location adjacent to the opening.

33. (currently amended) A method as in claim 26, further comprising wherein selectively directing ~~comprises~~ pivoting the at least one transducer from a fixed location within the balloon.

34. (original) A method as in claim 33, further comprising deflecting at least one additional transducer from a fixed location within the balloon.

35. (currently amended) A method as in claim 26, further comprising wherein ~~selectively directing comprises~~ expanding a second balloon disposed over the vibrational transducer, wherein the second balloon may be axially translated within the first balloon.

36. (currently amended) A method as in claim 1, wherein positioning the vibrational transducer comprises:

expanding the ~~the~~ **[[a]]** balloon over an opening at one end of the body lumen;
filling the end of the lumen over the balloon with the ~~the~~ **[[an]]** acoustically transmissive medium; and
positioning the vibrational transducer within the medium to direct acoustic energy at the luminal tissue.

37. – 39. (canceled)

40. (original) A method as in claim 1, wherein the body lumen is the esophagus and the patient suffers from gastroesophageal reflux disease (GERD).

41. (original) A method as in claim 40, wherein the acoustic energy remodels the tissue surrounding a lower esophageal sphincter.

42. (original) A method as in claim 1, wherein the body lumen is the stomach and the patient suffers from a hiatal hernia.

43. (original) A method as in claim 42, wherein the acoustic energy remodels the tissue surrounding a diaphragmatic sphincter.

44. (currently amended) Apparatus for remodeling the lower esophageal sphincter, said apparatus comprising:

a catheter adapted to be esophageally introduced to the lower esophageal sphincter (LES);

an inflatable balloon disposed near a distal end of the catheter; and

means for inflating the balloon with an acoustically transmissive medium;

a cylindrical vibrational transducer on the catheter within the balloon, wherein said transducer comprises at least two longitudinal divisions at least one of which can be separately energized to deliver acoustic energy to remodel the tissue of the LES in order to lessen gastroesophageal reflux wherein said balloon is adapted when inflated to position the catheter within the LES.

45. (canceled)

46. (previously presented) Apparatus as in claim 44, wherein the transducer is positioned coaxially with the balloon.

47. – 49. (canceled)

50. (currently amended) Apparatus as in claim 44 ~~[[48]]~~, further comprising means for cooling the acoustically transmissive medium.

51. (original) Apparatus as in claim 44, further comprising means for measuring temperature at or beneath the luminal wall.

52. (original) Apparatus as in claim 44, further comprising means to axially translate the transducer relative to the catheter.

53. (original) Apparatus as in claim 44, wherein the transducer comprises a phased array.

54. (original) A system comprising:
apparatus as in claim 44; and
a cannula having a channel for receiving and deploying the catheter.

55. (original) A system as in claim 54, further comprising a viewing scope which is part of or introducable through the cannula.

56. (original) A system as in claim 54, wherein the cannula further comprises an inflatable balloon over a distal end, wherein the catheter is extendible from the cannula into the balloon when the balloon is inflated.

57. (original) A system as in claim 56, wherein the vibrational transducer on the catheter is deflectable and/or rotatable and/or evertable within the balloon when inflated.

58. (original) A system as in claim 56, wherein the vibrational transducer on the catheter comprises a circumferential array and is axially translatable within the balloon when inflated.

59. (original) A system as in claim 56, wherein the transducer is pivotally mounted on the catheter.

60. – 62. (canceled).

63. (new) Apparatus as in claim 44, wherein the balloon comprises a material which selectively absorbs acoustic energy to enhance heating at the surface of the balloon.

64. (new) Apparatus as in claim 63, wherein the material is selected from the group consisting of silicone, polyurethane rubber, and oil suspensions.

65. (new) A method as in claim 1, further comprising placing a material against the luminal tissue to selectively absorb acoustic energy and preferentially heat tissue at the tissue interface.

66. (new) A method as in claim 26, wherein the balloon is attached to a distal end of the cannula and a distal orifice of the cannula is within the balloon.